

**COMPUTER-AIDED DECISION MAKING IN CHOOSING  
EDUCATION PROGRAMMES – A PROTOTYPE**

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**GRADUATE SCHOOL  
UNIVERSITI UTARA MALAYSIA  
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COMPUTER-AIDED DECISION MAKING IN CHOOSING  
EDUCATION PROGRAMMES – A PROTOTYPE

A Project submitted to the Graduate School in partial  
fulfillment of the requirements for the degree  
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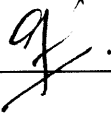
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## ABSTRACT (BAHASA MELAYU)

Sistem Sokongan Keputusan ialah satu program komputer yang boleh menganalisa data dan mempersembahkan maklumat bagi membantu pengguna membuat keputusan dengan lebih efektif. Oleh itu, satu sistem prototaip pembuatan keputusan berbantuan komputer bagi memilih program pendidikan telah dibangunkan. Tujuan utama sistem ini ialah untuk mencari program pendidikan yang bersesuaian untuk pelajar lepasan Sijil Peperiksaan Malaysia (SPM). Dalam prototaip ini, elemen agen diguna bagi menghasilkan satu sistem yang interaktif dan berupaya mencadangkan program yang bersesuaian dengan keputusan SPM yang diperolehi oleh pemegang SPM. Lima program yang ditawarkan oleh Universiti Teknologi Malaysia (UTM) telah dipilih sebagai program contoh. Teknik penaakulan berasaskan petua digunakan di dalam enjin bagi mencari program pendidikan yang paling sesuai dengan berasaskan keputusan SPM dan keperluan program yang minimum. Di dalam enjin tersebut, markah atau nilai setiap program dijanakan bagi menyusun keutamaan program yang bersesuaian dengan pelajar. Perisian *Microsoft Visual Basic 6.0* diguna untuk membangunkan enjin penaakulan berasaskan petua dan antaramuka pengguna bergrafik bagi sistem prototaip. *Microsoft Agent, James* juga digunakan sebagai agen beranimasi bagi menghasilkan satu sistem yang lebih interaktif. *Microsoft Access 97* telah dipilih sebagai perantaraan pangkalan data.

## ABSTRACT (ENGLISH)

Decision Support System (DSS) is a computer programme that can analyzes data and presents information in order to help user to make decision more effective. Therefore a prototype system, name Computer-Aided Decision Making in Choosing Education Programmes (CASCEP) is developed. The main purpose of this system is searching suitable education programmes for SPM holders. In this prototype system, an agent element is applied to become the system more interactive and have the ability to suggest the most suitable education programmes based on student's *SPM* result. Five programmes are offered by *Universiti Utara Malaysia (UTM)* have been selected as a sample programmes. Rule- based reasoning technique is used in engine to search the most suitable education programme based on *SPM* result and minimum programme requirements. In this engine, marks or value of each programme is generated to rank the programmes. *Microsoft Visual Basic 6.0* is used to build rule-based engine and graphical user interface (GUI) CASCEP. *Microsoft Agent, James* is applied as animated agent to make the system more interactive. *Microsoft Access 97* is chosen as the database medium.

**Keywords:** Decision Support System, Rule-Based Reasoning Technique

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## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Introduction**

With the maturing of computing, network and information infrastructures, many organizations are shifting their attention toward finding ways to use new technology effectively to support decision-making such as Decision Support System (DSS). Decision Support is a general term that refers to the orchestrated application of diverse technologies to improve individual and organizational decision processes. DSS is a computer programme application that analyzes data and presents information in order to help users to make decisions more easily. In informational application, it may present information graphically and may integrate with several techniques such as expert system (ES), natural language processing (NLP), genetic algorithm (GA), and intelligent agent (IA).

Open Certificate System practiced in the Malaysia Education System has increase the number of educational programmes that a Sijil Pendidikan Malaysia (SPM) holder is qualified to apply. Therefore the student needs a computerized

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